



Recalculating Route

# The Value Add of Managed Advice

MAY 2020

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## Abstract

Having a plan is critical to achieving a goal. When you drive a car, your intended destination is the goal. In some cases, the driver understands how to get to the destination. Those who do not can rely on GPS navigation systems to help them create a plan for the trip and reach their destination—their goal—most efficiently.

For most people, retirement is, arguably, one of life's most important and complex goals. The road to retirement is difficult to navigate. The target outcome may not be clear, and the many variables that impact that outcome are ever-changing. Successful retirement goals are achieved through continuous, holistic evaluation and planning—throughout the course of one's working career.

Managed Advice is the navigation system that helps retirement plan participants manage the complexity of planning and managing their financial needs to and through retirement. Managed Advice features include personalized portfolio advice, contribution rate recommendations, retirement and Social Security claiming age recommendations, tax awareness, and advice implementation and plan maintenance. It's a personalized path to and through retirement for each participant, guiding them toward their unique retirement destinations and adding material value compared to a target date fund or a "do-it-yourself" strategy.

We estimate the value add of Managed Advice to be 0.95% (95 bps) per year, excluding the value of contribution and retirement age recommendations. The estimated value add goes up to 655 bps for participants who use the contribution recommendation, and increases further to 785 bps if participants also accept the retirement and Social Security claiming age recommendation.

### Value Add of Managed Advice

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**95 bps**

per year w/ managed advice

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**655 bps**

per year + contribution  
recommendation

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**785 bps**

per year + retirement and  
social security claiming age  
recommendation

When planning for retirement, we all want to arrive somewhere, but everybody's "somewhere" is different. And, importantly, no two people start from the same place.

Financially speaking, there are many paths to retirement. Plan participants who opt to manage their own retirement assets often do so at the risk of making common investment mistakes, like poor market-timing and sub-optimal asset allocation and investment selection. Additionally, those who self-manage tend to miscalculate—or overlook altogether—determinants critical to a holistic, successful retirement plan, like goal setting, savings rates, a realistic retirement timeline, and post-retirement asset distribution options.

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Managed Advice provides an automated retirement planning and investment solution that is personalized for each participant and founded on professional methodologies.

solution that is personalized for each participant (versus "one-size-fits-all" target-date funds) and founded on professional methodologies (versus "DIY" retirement planning).

Participants relying on a target-date fund for retirement planning are driving to an unfamiliar place without navigational tools. They may be going too fast or too slow. They're unaware of obstacles or detours ahead of them. Managed Advice goes beyond age- or years-to-retirement-based products (TDFs), leveraging investment options available in the plan and specific participant information to create and implement portfolios personalized to an individual's unique circumstances. These portfolios are updated periodically, meaning every participant follows a unique and personal path to retirement. Managed Advice also includes value add planning features that further define participants' personalized routes.

We call the benefits of Managed Advice the advice value add, or "AVA." This paper presents the AVA of the features and benefits that comprise Managed Advice. Before we walk through the AVA of Managed Advice in greater detail, it's important to note that our AVA analysis is **hypothetical** in nature.<sup>1</sup>

Similar to using a GPS device on a road trip, what if participants had a retirement planning navigation system? Something that would recalculate one's route when they start to veer off course—when life events, large or small, inevitably occur. This navigation system would update a participant's journey over the course of their life, as needed or desired.

Managed Advice—NextCapital's proprietary workplace managed account service—is that retirement navigation system. Managed Advice provides an automated retirement planning and investment

## 📍 **Managed Advice Features**

### 📍 **Personalized Portfolio Advice**

The most obvious value add of Managed Advice is personalized portfolio advice. Participants are provided customized asset allocation strategies that align with a unique advice profile (based on one's age, gender, salary, savings, and more).

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### 📍 **Contribution Rate Recommendation**

Contributions have the most direct impact on participants' ability to retire. Managed Advice recommends a rate of salary that participants may need to contribute to their managed account (within reasonable boundaries) to retire successfully, given their goals. An automated, data- and goal-based recommendation simplifies the savings process for participants, allowing them to accept and implement the contribution rate, or modify it if necessary.

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### 📍 **Retirement and Social Security Claiming Age Recommendation**

When participants retire and when they claim Social Security benefits can have a significant effect on their retirement success. Managed Advice is able to recommend, within reason, the earliest possible retirement date and Social Security claiming age—i.e., when to stop working, stop contributing, and claim benefits—that will help participants to achieve their desired retirement lifestyle. This recommendation works in conjunction with the contribution rate recommendation.

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### 📍 **Tax Awareness**

Taxes can have a material impact on a participant's spending, but it can be hard to understand how that impacts income and lifestyle in retirement. Accordingly, the advice and recommendations provided by Managed Advice are based on after-tax values, which consider participants' potential tax liabilities. Even if not exact, reasonable tax estimations lead to more accurate advice than a model only considering pre-tax scenarios. Managed Advice models how participants access their assets in retirement and aims to maximize after-tax retirement income on an inflation-adjusted basis.

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### 📍 **Advice Implementation and Plan Maintenance**

Personalized portfolio advice can recommend an asset allocation for participants, but it doesn't tell them how to implement that advice. Managed Advice portfolios include investment selection (based on the plan's available investment options) and automatic portfolio rebalancing features that ensure participants are invested in—and maintain—a portfolio that effectively implements the appropriate advice.

## Additional Value Add Features

Managed Advice offers other features that serve as building blocks for participants' financial plans. This paper does not analyze the AVA for the following features, but they provide value to participants and shouldn't be overlooked.

### Target Retirement Income

Managed Advice provides all participants with a personalized retirement goal: a target spending amount to be sustained throughout their unique planning horizon. By default, we assume that participants want to sustain the same standard of living in retirement that they had while working. Thus, Managed Advice calculates a personalized [target retirement income](#) equal to the participant's pre-retirement [take-home pay](#). The target retirement income is important, as pre-tax and after-tax income differ substantially among participants, both before and after retirement. Our personalized target retirement income estimate more accurately represents participants' retirement needs than a simple rule-of-thumb, such as replacing 80% of gross salary. While considering taxes improves the accuracy of the target retirement income estimate, participants know their own situation best. They can reduce or increase their target to help ensure their plan is right for them.

### Planning Horizon

The greatest risk to retirees is spending down their savings too early, but they don't know how long they'll need to make their savings last. Estimated longevity is an important assumption factored into the participants' advice and recommendations. In retirement planning, it is important to set a [planning horizon](#) that is neither too long or too short. Retirees don't want to run out of money too quickly, nor do they want to realize later in retirement that they could have spent more earlier on. Managed Advice's planning horizon is informed by that need for balance. The planning horizon is determined so that, when combined with investment risk, the participant's recommended plan greatly mitigates their risk of running out of money while alive. It considers a participant's age, gender, spouse (who may have a different age and planning horizon), and their response to a subjective health question.

### Advice Refresh

Participants' advice will be updated or "refreshed" on a periodic basis. When individuals' circumstances change, their retirement plans should adapt accordingly. Participants are able to request updated advice (and recommendations) and provide additional information for further personalization.

## Personalized Portfolio Advice

Target-date funds ("TDFs") have emerged as the most popular default option for 401(k) plans. These funds are a one-size-fits-all approach, where all participants follow the same [glide path](#). TDFs use glide paths that are designed to be optimal for average plan participants only. With TDFs, participants have a map, but the map doesn't tell them the fastest route or the route that avoids common delays such as road construction, traffic jams, and accidents.

Unlike TDFs, Managed Advice provides participants with an asset allocation strategy that is directly tied to their personalized retirement goals. Even with minimal data from the recordkeeper (e.g., salary, account balance, and contributions), Managed Advice arrives at a more appropriate asset allocation strategy. The algorithm makes

adjustments based on a variety of factors related to life expectancy, retirement age, riskiness of human capital, guaranteed income, funding status, risk capacity, and risk tolerance.

Ultimately, the algorithm makes adjustments with an overall focus on either "Return Enhancement" or "Risk Control."

1. Return Enhancement participants have personalized glide path strategies that focus on capital growth (relative to the age-based, baseline glide path).
2. Risk Control participants have personalized glide path strategies that focus on capital preservation (relative to the age-based, baseline glide path).

Please refer to [Participant Categorization](#) for further information on how participants are categorized.

The classification of participants into these two groups - Return Enhancement or Risk Control - follows naturally from our personalized advice algorithms. The AVA is quantified by comparing the return gains of the personalized strategy versus a TDF-based strategy.<sup>2</sup>

The aforementioned participant groups anchor their expectations to different points in the distribution of potential outcomes. The Return Enhancement AVA is anchored to the median market expectation, and the Risk Control AVA is anchored to pessimistic market expectations. For clarity and ease of exposition, this paper only focuses on these two participant groups. However, the concept can be applied at a more granular level. We could consider more points in the distribution of outcomes in the analysis, allowing us to quantify the benefits more appropriately for each participant, which would ultimately increase the AVA.

## Evaluating the AVA

In **Table 1**, below, we summarize the average AVA across all plans in terms of return improvements from the personalized glide path. We call this our [alpha equivalent](#) measure because it measures the basis points of outperformance of Managed Advice over a target date fund.

We find that plans with a larger proportion of Return Enhancement participants may expect a greater AVA. In the unlikely scenario that a plan is comprised almost entirely of Risk Control participants, we would still expect Managed Advice to provide more benefit than a baseline glide path strategy, particularly in the event of a market crash. For more discussion on our methodology and results, readers should refer to NextCapital's whitepaper regarding the benefits of a personalized glide path: [Managed Advice: The Value Add of Personalized Solutions over Target Date Funds](#).

Aside from the plan's demographic composition, we recognize that the AVA may vary considerably based on methodological inputs, such as the capital market assumptions, model portfolios, and the baseline glide path. Readers interested in this discussion should refer to NextCapital's aforementioned whitepaper on the benefits of a personalized glide path. This paper also discusses the benefits of portfolio advice for "unengaged" participants who are defaulted into advice using only recordkeeping data versus "engaged" participants that provide more input beyond the recordkeeping data.

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TABLE 1

### Alpha Equivalent AVA from Personalized Portfolio Advice

The improvement in return is the money-weighted return, calculated based on starting wealth, contributions, and projected wealth upon retirement. Unlike other sections, the AVA is rounded to the nearest basis point, instead of the nearest 0.1%. This is because no conversion to an [alpha equivalent](#) is required. The "Weighted Average for a Representative Plan" is derived by assigning an 83% weight to Return Enhancement and a 17% weight to Risk Control. These weights are supported by our research across multiple sample plans, where we categorized all participants into the two participant groups. Further, these weights are broadly in line with Aon's "The Real Deal" research<sup>3</sup> which states that only 19% of participants are projected to accumulate more assets than needed. Source: NextCapital Advisers, Inc. © NextCapital Advisers, Inc. 2020. All rights reserved.

Participant Group	AVA
Return Enhancement	0.39%
Risk Control	0.13%
Weighted Average for a Representative Plan	0.35%

For example, assuming the plan has an average accumulation period of 25 years and an average starting account balance of \$100,000, the personalized glide path may, on average, increase the inflation-adjusted wealth for Return Enhancement participants at retirement by \$10,000 relative to a TDF-based strategy.

The alpha equivalent can be translated into a hypothetical increase in wealth at retirement. For example, assuming the plan has an average accumulation period of 25 years and an average starting account balance of \$100,000, the personalized glide path may, on average, increase the inflation-adjusted wealth for Return Enhancement participants at retirement by \$10,000 relative to a TDF-based strategy. Refer to the [Example Calculation](#) section in the Appendix for more information.

### Contribution Rate Recommendation

Participants can increase the chances they successfully arrive at their retirement destination by increasing contributions.

Managed Advice offers a personalized contribution recommendation. This feature provides participants with guidance on how much they should save in order to maintain their standard of living after they retire.<sup>4</sup> More specifically, our goal is to provide a contribution recommendation (within any applicable IRS and plan limits) that enables each participant to spend their target retirement income throughout their retirement. To make this more palatable, we support several different types of auto-escalation ("save more tomorrow") features, as well as an overall limit on increasing recommended contributions. Participants can refresh their contribution recommendation at any time, which can be especially helpful when there are material changes to their unique circumstances. Refer to [How the Contribution Recommendation Works](#) in the Appendix for more information.

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### Evaluating the AVA

To quantify the benefits of the contribution recommendation feature, we compare the participant's projected take-home pay both with and without contribution recommendations over their planning horizon. Improvement is measured using a utility function based on the two different take-home pay streams<sup>5</sup>; and, like the personalized portfolio advice AVA, it is expressed in terms of an [alpha equivalent](#).

We believe that participants prefer income streams that are more stable over time. Thus, our chosen utility function rewards income stability and penalizes big, sudden decreases to income. Our framework is a fair

representation of the trade-off between spending more today and saving more for retirement. It rewards participants who save more, because it increases the stability of their income stream, but it also penalizes them for doing so, because it lowers their take-home pay during the accumulation phase.

We applied this framework to a baseline set of [sample participants](#). This set represents the range of typical participants who are behind in saving for retirement. We also created some additional variations of these baseline participants (“participant groups”) by varying the account balance, contributions, and desired retirement age. Refer to the [Contribution AVA Sample Participants](#) section for more detailed information.

**Table 2** presents the results of our analysis. The results clearly show that the majority of participants can greatly benefit from our contribution recommendation feature. For more discussion on our methodology and results, refer to the [Contribution AVA Methodology](#) section in the Appendix.

The benefit of our contribution recommendation can also be expressed in terms of an increase to the [projected retirement income from accounts](#). Sample participants who accepted our contribution recommendation increased their annual, after-tax, projected retirement income from their accounts by 63%, on average.

## Retirement and Social Security Claiming Age Recommendation

When traveling, sometimes we need to delay our trip to ensure we reach our destination safely. Deferring retirement and Social Security benefits can potentially provide significant reward to participants in two key ways:

- Deferring Social Security benefits increases the annual benefit. In most cases, the annual inflation-adjusted retirement benefit increases by 8% each year participants defer Social Security benefits. Given increases in life expectancy and a lower interest rate environment, the adjustment factors favor delayed benefits claiming from an actuarial perspective.<sup>6,7</sup> Individuals can also benefit from program education, with only ~53% of Americans approaching eligibility knowing there is no benefit to deferring Social Security beyond age 70.<sup>8</sup>
- Deferring retirement reduces the need for retirement income and increases the number of years of contributions and asset growth before retirement. Offsetting living expenses with salary or earned income and contributing to retirement for an extra year or two can make retirement more attainable.

Managed Advice offers a retirement and Social Security claiming age recommendation. It shares the same goal as, but is secondary to, the contribution rate recommendation: participants will only be recommended to defer retirement if higher contributions, alone, are not enough. The recommendation is capped at age 70 (since

there is no benefit to Social Security deferral post age 70). Participants can refresh their retirement and Social Security claiming age recommendation at any time and perform scenario analysis of projected outcomes, such as delaying Social Security but not retirement. While we estimate participants' Social Security benefits based on their salary, we strongly encourage those closer to retirement age to enter their Social Security benefit consistent with their planned retirement age, as provided by the Social Security Administration.<sup>9</sup> Please refer to [How the Retirement Age and Social Security Claiming Age Recommendation Works](#) section in the Appendix for more information.

## Evaluating the AVA

The AVA is represented by the improvement of the present value of the retirement take-home pay among participants who followed the retirement and Social Security claiming age recommendation,<sup>10</sup> expressed in terms of an [alpha equivalent](#) measure (like earlier sections).

Our analysis is based on a variety of sample participants. Similar to the contribution rate recommendation, we start with a baseline participant group and then vary account balances, contributions, or desired retirement/Social Security claiming age to create additional participant groups. Participants with an earlier desired retirement/claiming age will be more underfunded for retirement, since they plan to retire earlier with a smaller Social Security benefit and (likely) less in accumulated retirement savings.

The arithmetic average AVAs for each participant group in **Table 3** clearly indicate that a variety of participants benefit from a retirement age and Social Security claiming age recommendation. Participants who wish to retire and claim Social Security before their full retirement age have the most to gain. While we aren't always able to choose when we retire, participants who plan to retire and claim Social Security benefits before age 65 should carefully consider their options.

For further description of our methodology, discount rate, and AVA metric, please refer to the [Retirement Age and Social Security AVA Methodology](#) section in the Appendix.

## Tax Awareness

Taxes are to participants as traffic jams are to drivers: they're inevitable, and failing to plan for them can have unwanted consequences.

TABLE 3

### Alpha Equivalent AVA from Retirement and Social Security Claiming Age Recommendation

We calculate the arithmetic average AVA across each participant group under our default discount rate assumption to determine the AVA metrics below. AVA values rounded to the nearest 0.1% to avoid conveying that these values—which are just estimates of true metric values based on a limited but representative set of hypothetical participants—are more precise than they really are. Source: NextCapital Advisers, Inc. © NextCapital Advisers, Inc. 2020. All rights reserved.

Participant Group	AVA
Baseline	1.3%
Higher Account Balance	1.0%
Higher Contributions	1.1%
Higher Desired Retirement Age	1.2%
Lower Desired Retirement Age	3.5%

Participants' decisions regarding where and when to withdraw savings can have a material impact on after-tax retirement income. Most participants approaching retirement are not sure how taxes affect their retirement assets. Of roughly 1,300 investors surveyed online,<sup>11</sup> only 46% are confident in how to best utilize accounts with different tax treatments for retirement income. Some account types are taxed upon withdrawal, some are not. And some (both taxable or after-tax account types) only tax the gains. Retirement plan participants who are thoughtful about taxes know that taxes can impact their retirement plan in several ways. Further discussion of tax considerations for participants in the [Additional Tax Considerations for Retirement Plan Participants](#) section of the Appendix.

When taking portfolio withdrawals, there is material value add from considering taxes. Even at an early age, participants should consider taxes as they impact the after-tax value of contributions and retirement income. While Managed Advice does not offer tax advice (we do not collect all the necessary data about the participants' tax situations), it aims to maximize participants' long-term asset growth (and retirement income) in selecting a default account withdrawal sequence:

- **First**, always take **required minimum distributions (RMDs)**. There can be significant tax penalties for failing to comply with RMDs.
- **Second**, withdraw from **taxable** accounts, as the income is subjected to tax and triggers tax in the event of withdrawal.
- **Third**, withdraw from **tax-deferred** accounts only when it becomes necessary due to required minimum distributions (RMDs) or the depletion of the taxable accounts.
- **Finally**, withdraw from **Roth** accounts last to maximize tax-free growth.

Not every managed account program considers taxes. But, we believe that it's an important factor in helping participants get the most accurate picture.

## Evaluating the AVA

We evaluate the AVA benefit of our default withdrawal sequence in a case-study framework by comparing a representative participant's projected retirement income from accounts both with and without the default withdrawal sequence. In alignment with prior sections, we express the benefit in terms of the [alpha equivalent](#). See the [Tax Awareness AVA Methodology](#) section in the Appendix for the representative participant's assumptions and the case study framework.

When taking portfolio withdrawals, there is material value add from considering taxes. Even at an early age, participants should consider taxes as they impact the after-tax value of contributions and retirement income.

In **Table 4**, we show how different withdrawal sequences affect the participant's projected retirement income from accounts. While we expect the AVA benefit shown here to be in this range for most cases, it may differ in other scenarios. Participants can vary (e.g., they may have different account types or account balances), and/or the framework used to evaluate the benefit can vary (e.g., different capital market assumptions would change the AVA).

TABLE 4

#### **Alpha Equivalent AVA from Tax Awareness**

The participant received a projected Social Security benefit of approximately \$23,500, which is excluded when we calculate the projected retirement income from accounts. The "weighted average of alternatives" assigns a 20% weight to Alternative #1, 40% weight to Alternative #2, 30% weight to Alternative #3, and a 5% weight to each of Alternatives #4 and #5. This weighting scheme reflects the uncertainty among participants of how to draw down assets for retirement, while also giving them some benefit of the doubt (e.g., we assigned a lower weight to Alternatives which withdraw Roth first). AVA values rounded to the nearest 0.1% to avoid conveying that these values—which are just estimates of true metric values based on a representative hypothetical participant—are more precise than they really are. Source: NextCapital Advisers, Inc. © NextCapital Advisers, Inc. 2020. All rights reserved.

Name	Withdrawal Sequence	AVA of Default Withdrawal Sequence over Alternative
Default Withdrawal Sequence	Taxable > Pre-tax 401k > Roth IRA	---
Alternative #1	Taxable > Roth IRA > Pre-tax 401k	0.1%
Alternative #2	Pre-tax 401k > Taxable > Roth IRA	0.3%
Alternative #3	Pre-tax 401k > Roth IRA > Taxable	0.3%
Alternative #4	Roth IRA > Taxable > Pre-tax 401k	0.1%
Alternative #5	Roth IRA > Pre-tax 401k > Taxable	0.3%
Weighted Average of Alternatives		0.2%

#### **Advice Implementation and Plan Maintenance**

GPS navigation systems provide not only a trip plan, but voice commands to help the driver easily follow the plan. As mentioned in the introduction, participants struggle with basic aspects of portfolio management, including implementation and maintenance. Participants using Managed Advice receive professional guidance that helps them follow their plan and stay on track for retirement.

- **Managed Advice implements participants' asset allocation strategy with appropriate investments that track the benchmarks.** In general, investors' personal portfolios have a tendency to underperform the mutual funds of which they are composed.<sup>12</sup> Applied to a workplace plan, participants would have a tendency to underperform the investment options selected by the plan sponsor. Although TDF users arguably should allocate 100% of their retirement savings to a TDF - and thereby alleviate this fund selection challenge - even they struggle with this in practice. TDF users tend to allocate some portion of their account to non-TDF funds in a misguided attempt to "diversify" their portfolio.<sup>13</sup> In addition, managed account users seem more likely to "stay the course" with their investment strategy compared to non-managed account users.<sup>14</sup> With

Managed Advice, participants outsource portfolio construction to a model, designed and tested by financial professionals, which can easily adapt to a changing menu of plan investment options.

- **Managed Advice automatically rebalances investments as markets move.** A managed account automatically rebalances towards its target allocation when deviations occur due to market movements. A typical investor may overweight or underweight certain asset classes (e.g., buying high when prices are relatively more expensive and selling low when prices are relatively inexpensive); this may pose a drag on the long-run portfolio performance. A workplace managed account also creates administrative barriers, which can nudge participants to stay the course when they are tempted to try to time investments during market turbulence. Please see NextCapital's "[How to Stay Disciplined Through Market Volatility](#)" white paper for more information on how participants can benefit from a disciplined approach.

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With Managed Advice, participants outsource portfolio construction to a model, designed and tested by financial professionals, which can easily adapt to a changing menu of plan investment options.

### Evaluating the AVA

Participants who opt to invest in a professionally managed program will more likely avoid the ill-timed portfolio transactions that less-experienced investors may make. It is reasonable to quantify the value of this timing by comparing investment performance of mutual funds against that of the investors who utilize them. The "Mind the Gap" study cited within this paper tracked such data over the past several years. Averaging the findings of the last five years of the study, a typical mutual fund investor lost about 0.4% (40 basis points) of annualized performance due to poor market timing.<sup>15</sup>

### Conclusion

Driving to an unfamiliar place without a map or a GPS system is intimidating, and unwise. Likewise, participants want to secure their retirement, but it may not be clear how to get there, or even how to get started. Managed Advice can meet participants where they are now, help guide them as circumstances change, and get them to where they want to be.

TABLE 5

#### Summary of Alpha Equivalent AVA

Personalized portfolio advice AVA is the "weighted average for a representative plan" from Table 1. Tax awareness AVA is the "weighted average of alternatives" from Table 4. For other features, where applicable, alpha equivalent AVA values shown for the "baseline" participant group from Table 2 and Table 3. Source: NextCapital Advisers, Inc. © NextCapital Advisers, Inc. 2020. All rights reserved.

Feature	AVA
Personalized Portfolio Advice	0.35%
Contribution Rate Recommendation	5.6%
Retirement and Social Security Claiming Age Recommendation	1.3%
Tax Awareness	0.2%
Advice Implementation and Plan Maintenance	0.4%
<b>Total</b>	<b>7.85%</b>

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Managed Advice provides concrete, quantifiable benefits to participants which are summarized in **Table 5**. In particular, we find that Managed Advice provides participants who do not accept either of our recommendations 95 bps of estimated value. This increases to 655 bps if participants follow our contribution recommendation, and reaches 785 bps if participants also accept our retirement and Social Security claiming age recommendation.

## Glossary

### Alpha Equivalent

A way of measuring AVA that is comparable to a mutual fund's "alpha" or outperformance over a benchmark. In our alpha equivalent analysis, the benchmark is not accepting Managed Advice's recommendation, and the "alpha" is the additional annual return the participant would need each year to match the benefit of accepting Managed Advice's recommendation.

Here's a simplified, hypothetical example of the alpha equivalent from the retirement and Social Security claiming age recommendation. Let's say the participant accepts that recommendation and increases the present value of their retirement take-home pay from \$300,000 a year to \$330,000. Now, consider if the participant hadn't accepted that recommendation. What is the additional portfolio return they'd need each year to improve from \$300,000 to \$330,000? That's the alpha equivalent.

For several features, we use an alpha equivalent methodology to express the AVA. This alpha equivalent is calculated for each participant group. Note that even within each participant group, there is a range of calculated alpha equivalents for each participant within the group (since participants vary by age, Social Security benefit, contributions, etc.). We calculate an alpha equivalent such that the median of the AVA value per participant group without the recommendation is approximately equal to the median AVA with the recommendation. The choice of median rather than an average mitigates the impact of outlier participants on the alpha equivalent measure.

### Glide path

Portfolio asset allocation advice based on the number of years until a participant's planned retirement age.

### Planning horizon

The number of years that we plan out a participant's financial status. This is dynamically calculated based on a participant's gender and (if applicable) their spouse's age and health risk questionnaire response. Underlying this calculation is a Society of Actuaries ("SOA") mortality table and SOA mortality improvement table.

### Projected retirement income

A participant's total projected annual (after-tax) retirement income. More precisely, the projected retirement income is the highest after-tax annual amount that Managed Advice is statistically confident is "sustainable" at a given confidence interval throughout a participant's retirement years. Managed Advice typically uses a 70% confidence interval, i.e. we project the highest after-tax retirement income a participant could sustain in 70% of scenarios.



## Projected retirement income from accounts

Projected retirement income less projected after-tax guaranteed income (e.g., Social Security).

## Sample participants

Hypothetical plan participants, with assumptions driven by data. Sample participant data has several “dimensions” including age, salary, account balance, and more.

## Take-home pay

A participant's net income: gross income with deductions for estimated taxes (payroll/FICA and state and federal taxes) and annual retirement account contributions. In retirement, contributions no longer apply.

## Target retirement income

A participant's after-tax desired retirement income. Managed Advice makes an assumption on a participant's behalf based on their (pre-retirement) take-home pay. Participants can override the target retirement income.

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## Appendix - Personalized Portfolio Advice

### Participant Categorization

**Return Enhancement:** Participants in this group are characterized by an overall higher risk/return capacity (in conjunction with a moderate to high implied risk tolerance) and receive personalized glide paths that are more focused on capital growth than the baseline glide path strategy. The following are examples of Return Enhancement participants, under the assumption that each participant's other characteristics and circumstances are the same as the baseline participant's:

- Married participant with a longer life expectancy than the average participant.
- Participant who has a higher guaranteed portion of projected fundable retirement income relative to their peers (i.e., guaranteed income from Social Security or a pension).
- Participant who is underfunded relative to their target.

**Risk Control:** Participants in this group have an overall lower risk/return capacity (along with a moderate to low implied risk tolerance) and receive personalized glide paths that are more focused on capital preservation than the baseline glide path strategy. The following are examples of Risk Control participants, under the assumption that each participant's other characteristics and circumstances are the same as the baseline participant's:

- Male participant with poor health who has a shorter life expectancy than the average participant.
- Participant who has a lower guaranteed portion of projected fundable retirement income relative to their peers.
- Participant who is overfunded relative to their target.



## Data

We apply this framework to a large set of sample participants. We determined our set of sample participants by sampling from a large pool of more than 12,000 real participants that represent the spectrum of plan participants.

## Example Calculation

The example assumes an improvement in return of 0.39%, which is the global average across all plans according to our research. The impact on wealth at retirement is calculated as  $((1 + 0.39\%)^{25}) - 1 = 10\%$ .

## Reference

The unabridged paper, "Managed Advice: The Value Add of Personalized Solutions over Target Date Funds", is available upon request. This paper contains detailed discussion of our framework, including the methodology, assumptions, sample participants, and broadly applicable and case study results that are briefly presented in this summary paper. The paper also provides detail regarding NextCapital's personalization algorithm.

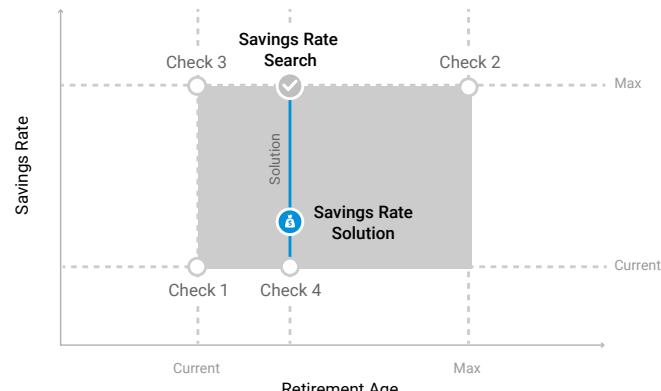
## Appendix - Contribution Recommendation

### How the Contribution Recommendation Works

#### EXHIBIT 1

#### Visualization of contribution recommendation

The Contribution Recommendation feature works in conjunction with our [Retirement and Social Security Claiming Age Recommendation](#). Once a retirement age is found, we'll search for the contribution rate (refer to the blue line that intersects "Check 4") until we find the rate that is "just enough" to get the participant to their desired retirement income. Source: NextCapital Advisers, Inc. © NextCapital Advisers, Inc. 2020. All rights reserved.



### Contribution AVA Methodology

#### Process

To quantify the benefits of NextCapital's contribution recommendation feature, we generate take-home pay income streams (i.e., the net amount of income received after taxes and retirement contributions) across the full lifecycle for a set of representative sample participants for two scenarios:

- Scenario 1: assumes the participants save at NextCapital's recommended contribution rate.
- Scenario 2: assumes the participants save at their current contribution rate levels.

Next, for each participant and scenario, we calculate a utility-equivalent constant income based on the vector of the participant's take-home pay (in accumulation and decumulation). This value represents the constant amount of income with the same utility as the actual income path. The utility-equivalent constant income is calculated as below:

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$$u = \left( \frac{\sum_{t=0}^T c_t^{\frac{\gamma-1}{\gamma}} * (1+r)^{-(t+1)}}{\sum_{t=0}^T (1+r)^{-(t+1)}} \right)^{\frac{1}{\gamma-1}}$$

where consumption,  $c$ , is represented by the participant's net-take-home pay in accumulation and decumulation;  $\gamma$  represents a participant's preference for income stability (the elasticity of intertemporal substitution parameter);  $r$  represents the participant's personal discount rate (which measures the extent that a participant values current income relative to future income); and  $t$  represents time relative to their current age.

We quantify the advice value add by calculating the percentage change

in the utility-equivalent constant income that the sample participants get from the contribution recommendation feature (Scenario 1) compared to not utilizing that feature (Scenario 2).

## Utility Framework

We use a utility framework inspired by Epstein and Zin (1989).<sup>16,17</sup> This framework allows us to compare two separate income streams and determine which would be preferred by a participant, based on their level of preference for income stability and their personal discount rate. **Table 6** displays the parameters we use in this analysis.

Our choices for parameter values can be considered a reasonable representation for a standard plan participant. This parameter constellation is common in literature; see Gomes and Michaelides (2004)<sup>20</sup> and Blake, Wright, and Zhang (2008).<sup>21</sup> In a later section, we conduct sensitivity analysis on these parameter values to evaluate the impact on the AVA from the contribution recommendation.

## Assumptions

We use the current NextCapital Advisers Capital Market Assumptions and Model Portfolios and other primary advisory methodological inputs and required assumptions that are used for generating holistic financial plans and providing contribution recommendations to real users.

## Contribution AVA Sample Participants

The sample participants are designed with parsimony in mind. As noted above, they are specified to represent underfunded participants across the spectrum of workplace plans. The set of representative participants vary across the salary, age, account balance and contribution rate dimensions. We did not vary other dimensions in order to keep this analysis tractable. The data and assumptions for the sample participants are supported by NextCapital anonymized user demographics and Vanguard's "How America Saves 2019" study.<sup>22</sup>

Regarding the "Baseline" participant group we created sample participants for every permutation of the following dimension values shown in **Table 7**.

Regarding the additional participant groups:

- Those in the "Higher Account Balance" participant group have 1.5x or 2x the account balance of "Baseline"

TABLE 6

### Parameter values

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Parameter	Value
Elasticity of intertemporal substitution <sup>18</sup>	0.35%
Personal discount rate <sup>19</sup>	5.6%

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TABLE 7

**Dimension values for “Baseline” participant group**

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Dimension	Dimension Values		
Age	35	45	55
Salary	\$50,000	\$75,000	\$100,000
Contributions	4% of Salary	7% of Salary	
Account Balance	40% of Salary	150% of Salary	

participants.

- Those in the “Higher Contributions” participants group have double the contributions of “Baseline” participants.
- Those in the different retirement age participant groups desire to retire at the ages of 67 and 62 for “Higher Desired Retirement Age” and “Lower Desired Retirement Age,” respectively.
- Additional Discussion of AVA Metric
- We recognize the potential importance of the elasticity of intertemporal substitution (“EIS”) and personal discount rate parameter values in determining the value of our AVA metric. Thus, we conducted sensitivity analysis, changing only the parameter value in question and keeping all other assumptions and inputs static.

We note that our AVA findings are robust to other, reasonable parameter values. In particular, we assessed the impact of increasing the EIS (which indicates a lower preference for consumption stability relative to our default assumption), finding that the contribution recommendation feature provided positive benefits for EIS values up to 0.7. Further, we tested the impact of increasing the personal discount rate (which corresponds to a relatively higher preference for current consumption relative to future consumption), noting positive benefits for personal discount rates up to 10%.

We believe that the most appropriate assumption for our AVA framework is a lower EIS, namely a value of 0.2. This is because a lower EIS is more consistent with our contribution recommendation methodology. The feature inherently assumes that participants want to smooth their take-home pay between their working years and retirement. In other words, participants place great value on income stability. We choose an EIS of 0.2 since this value can be considered appropriate to model a participant who dislikes consumption volatility over time; refer to Blake, Wright, and Zhang (2008) for more information.

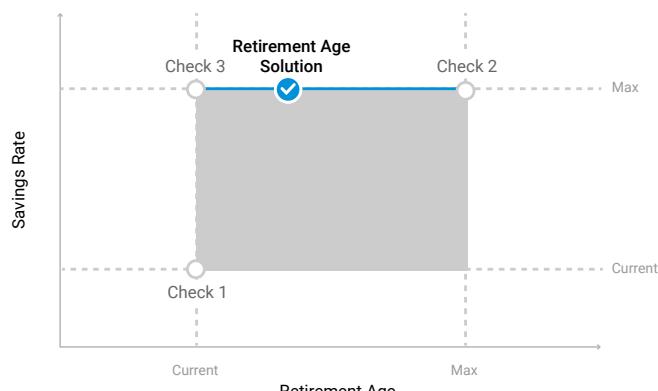
## Appendix - Retirement and Social Security Claiming Age Recommendation

### How the Retirement and Social Security Claiming Age Recommendation Works

(see Exhibit 2 on the following page)

**EXHIBIT 2****Visualization of retirement and Social Security claiming age recommendation**

We check whether the participant can achieve their desired retirement income for, potentially, several different retirement and Social Security claiming ages before selecting one. We'll first check whether the participant's "Current" savings rate and retirement and Social Security claiming age are enough ("Check 1"). If not, we'll try the maximum savings rate and retirement/claiming age allowed by our methodology ("Check 2"). If that's not enough, we stop and recommend the maximum allowed savings rate and retirement/claiming age. If it is, then the retirement age we're searching for is somewhere in between the current and the maximum. We'll search for the retirement/claiming age (along the blue line between "Check 3" and "Check 2") until we find the age that is "just enough" to get the participant to their desired retirement income. Source: NextCapital Advisers, Inc. © NextCapital Advisers, Inc. 2020. All rights reserved.

**Retirement Age and Social Security AVA Methodology****Process**

To quantify the benefits of NextCapital's retirement and Social Security claiming age recommendation feature, we generate take-home pay income streams (i.e., the net amount of income received after taxes and retirement contributions) across the full lifecycle for a set of representative sample participants for two scenarios:

- Scenario 1: assumes the participants use NextCapital's recommended retirement and Social Security claiming age.
- Scenario 2: assumes the participants use their current retirement and Social Security claiming age.

Next, for each participant and scenario, we calculate the present value of the take-home pay for each year the participant is retired. The present value is calculated as below:

$$PV \text{ Income} = \sum_{t=0}^T \frac{C_t}{(1+r)^t}$$

where consumption, C, is represented by the participant's net-take-home pay if retired; r represents the discount rate; and t represents time (the number of years elapsed since the participant's current retirement and Social Security claiming age).

We quantify the advice value add by calculating the percentage change in the present value of retirement income that the participants get from the feature (scenario 1) compared to not utilizing the feature (scenario 2).

Our model was inspired by a Social Security Administration study of optimal Social Security claiming age.<sup>23</sup>

**Assumptions**

We use the current NextCapital Advisers Capital Market Assumptions (CMAs) and Model Portfolios and other primary advisory methodological inputs and required assumptions that are used for generating holistic financial plans and providing retirement and Social Security claiming age recommendations to real users.

Our default discount rate assumption is based on the 30th percentile cash annual real return (i.e. net of assumed

inflation) from this set of CMAs. At this percentile, cash has a near-zero return in the short term before converging to around a 1% return in the long-term. This return represents the risk-free rate. While participants may not necessarily suffer greatly if they cannot meet their retirement income goal, we take their retirement goal seriously and assume that it is very undesirable to fall short of their income goal at any point during their retirement.

### Retirement Age and Social Security AVA Sample Participants

As mentioned, the participants leverage those from the contribution rate recommendation AVA.

- For the “Baseline” participant group, the possible age, salary, account balance, and contribution rate values are very similar to the contribution rate recommendation AVA, except we’ve increased the contribution rate values to 8% and 12% of salary.
- Participants in the “Higher Account Balance” group have double the account balance of the “Baseline” participants.
- Participants in the “Higher Contributions” group all contribute 15% of salary. (There are really only 18 unique participants in this participant group.)
- Participants in the different retirement age groups desire to retire at the ages of 67 and 62 for “Higher Desired Retirement Age” and “Lower Desired Retirement Age,” respectively.

### Additional Discussion of AVA Metric and Importance of Discount Rate Assumption

We recognize the potential importance of the discount rate in determining the value of our AVA metric. We find that our AVA findings are robust to a variety of realistic discount rates, providing a positive benefit for real discount rates up to 4%.

We believe assuming a lower discount rate, like our default discount rate, is more consistent with the retirement and Social Security claiming age recommendation’s methodology and the best assumption for our AVA framework. The AVA metric decreases as the discount rate increases. The higher the discount rate, the less desirable it is to defer retirement. Participants who are more underfunded for retirement (such as the “Lower Desired Retirement Age” participant group) and choose not to defer retirement can be thought of as having a high discount rate. They really need the money right now and do not care as much about the future. However, our retirement and Social Security claiming age recommendation methodology, like our contribution rate recommendation methodology, assumes participants want to smooth their take-home pay between working and retirement: they care greatly about the future. This supports our decision to use a lower discount rate, based on the risk-free rate, as our default discount rate.

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## Appendix - Tax Awareness

### Additional Tax Considerations for Retirement Plan Participants

Plan participants (and/or their financial advisors) can practice tax awareness in their retirement planning in at least three ways: how they withdraw assets for retirement, where they locate assets, and “tax-loss harvesting.” The body of the paper focused on the first item, so we’ll address the last two items here.

- Asset location
  - Refers to minimizing the tax drag on one’s assets by thoughtfully placing them in different accounts. For

example, a participant may wish to locate their fixed income assets, which would be subjected to taxes on at least an annual basis in a brokerage account, in a tax-deferred 401k account. Some retail robo-advisors offer asset location services.

- Managed Advice lacks the necessary information to effectively perform asset location in a workplace plan context. We'd need accurate information on participants' outside accounts, and we can't necessarily rely on them to provide this information.
- Tax-loss harvesting
  - Refers to the practice of using capital losses to offset capital gains to minimize an investor's tax liability. Some retail robo-advisors offer it.
  - Tax-loss harvesting applies to brokerage accounts, but not necessarily to tax-favored retirement accounts where gains are not taxed differently than basis (principal). One exception to this is after-tax 401k accounts, where gains are taxed but basis is not. Even in this case, we would need individual share lot prices to offer tax-loss harvesting. Managed Advice doesn't have access to this information.

Managed Advice is thoughtful in how it models retirement withdrawals, in a way that can add value to a typical participant's plan. Additional value can be added in a retail context—working with a savvy financial adviser—that cannot be captured by a workplace managed account solution.

## Tax Awareness AVA Methodology

### Representative Participant Assumptions

#### Case Study Framework

Our representative participant is a typical recently retired participant who has most of their wealth in a traditional 401k account, with some additional monies in a Roth IRA and a taxable account. While retirees will not all look like this representative retiree, having much more in the 401k than the IRA is consistent with IRS limits on contributions to 401ks and IRAs. Since we wish to focus on the withdrawal sequence, for the portfolio advice, we utilize our default glide path, which is the default advice we'd suggest to a participant if all we knew about them was their age.

**TABLE 8**  
**Representative participant assumptions for tax awareness AVA**

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Assumption	Value
Age	65
Gender	Male
Marital Status	Single
Current Salary	\$90,000
Account 1 - Account Type	401k (pre-tax)
Account 1 - Account Balance	\$700,000
Account 2 - Account Type	Roth IRA
Account 2 - Account Balance	\$125,000
Account 3 - Account Type	Taxable
Account 3 - Account Balance	\$125,000

## Endnotes

1. **IMPORTANT:** This analysis is described as being "hypothetical" because the results are based on a projection of the future, and we do not know how the participant's portfolio might have changed after being enrolled into managed accounts. Further, note that the advice outcomes in our analysis do not reflect actual investment results and exclude the impact of all fees, including fund expense ratios and management fees. Actual Managed Advice participant results will vary with each use and over time, and NextCapital Advisers does not guarantee future results.
2. NextCapital Advisers' RetirementIndex glide path (a market consensus approach to TDF investing that by itself mitigates the risk of adverse provider selection and their idiosyncratic assumptions).
3. The Real Deal Research. 2018 Retirement Income Adequacy at U.S. Plan Sponsors. Retrieved May 1, 2020 from <https://www.aon.com/getmedia/5309615e-7d8f-4ef6-81e8-851c3dba4acf/Aon-Retirement-Solutions-The-Real-Deal-Research-Report-US-2018.aspx>
4. This is our way of interpreting the Permanent Income Hypothesis. This economic theory posits that changes in "permanent income", rather than changes in temporary income, are what drive changes in consumer spending. Applying this to a retirement planning context, participants want to save for retirement in order to guard against a future decline in income (when they retire).
5. The AVA is derived from the take-home pay stream across the participant's life cycle.
6. Munnell, A., and Anqi Chen, A (2019). Are Social Security's Actuarial Adjustments Still Correct? Center for Retirement Research at Boston College, Number 19-18. Retrieved April 22, 2020 from [https://crr.bc.edu/wp-content/uploads/2019/11/IB\\_19-18.pdf](https://crr.bc.edu/wp-content/uploads/2019/11/IB_19-18.pdf)
7. We recognize that not everyone should defer Social Security claiming, particularly if they have a financial emergency or health issues that may impact their life expectancy.
8. 2020 MassMutual Social Security Retirement Benefits Consumer Poll Topline Report. Retrieved April 22, 2020 from [https://www.massmutual.com/static/path/media/files/2020\\_massmutual\\_social\\_security\\_retirement\\_benefits\\_consumer\\_poll\\_topline\\_report.pdf](https://www.massmutual.com/static/path/media/files/2020_massmutual_social_security_retirement_benefits_consumer_poll_topline_report.pdf)
9. Please see <https://www.ssa.gov/myaccount/>
10. This framework fairly represents the trade-off between missing out on retirement income during a retirement deferral period and increasing the future retirement income stream. We know that deferring retirement or Social Security benefits is inconvenient, at best. While our AVA metric does reward participants for increasing their retirement income stream as a result of deferring retirement/Social Security, it also penalizes participants for missing out on retirement income during the deferral period.
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15. The metric being averaged is the trailing ten year underperformance of investors in all mutual funds (i.e. the first period is January 2005 through December 2014, and the last period is January 2009 through December 2018).
16. Epstein, L. and Zin, S. (1989). Substitution, Risk Aversion, and the Temporal Behavior of Consumption and Asset Returns: A Theoretical Framework. *Econometrica*, Vol. 57, No. 4, p. 937-969.
17. We use a discretized version of this utility framework per Morningstar's Alpha, Beta, and Now...Gamma paper. Blanchett, D. and Kaplan, P. (2013). Alpha, Beta, and Now...Gamma. Retrieved April 22, 2020 from <https://www.morningstar.com/content/dam/marketing/shared/research/foundational/677796-AlphaBetaGamma.pdf>
18. Parameter measures the extent that a participant desires consumption smoothing.
19. Parameter measures whether individuals value current consumption more highly than future consumption. Individuals with a low personal discount factor (or high personal discount rate) value current consumption more.
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